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DEPARTMENT OF THE ARMY
ARMY SCIENTIFIC ADVISORY PANEL
WASHINGTON, D.C. 20310

DAMA-ARA

6 August 1975

MEMORANDUM FOR: DR. HANEMAN
MR. HAWKINS
MR. SAMUELS
MR. WEISS

SUBJECT: Caliber/Gun for AAH

*Don't understand
Range and cross
problems. How about
firing at your - all the
low muzzle velocities
have trouble. This is
not a very complete
report - looks more
like a discussion
w.*

1. At Incl 1 are the Terms of Reference (TOR) for subject effort; at Incl 2 is the membership listing of those participating. At Incl 3 (~~CONFIDENTIAL~~) is the "report" cited in the TOR.
2. I must point out that the TOR are slightly amended from those I read to you telephonically, specifically paras 2d and 3. I must also state that the "report" is in the form of a package of vugraphs used for the presentation.
3. You are scheduled to receive detailed briefings on 19 and 20 August from concerned Government agencies, contractors, and Staff personnel. LTC Cass will contact you during the week of 11 August to advise time and place of your meeting.
4. I thank you again in behalf of all concerned for your most willing response to tackling this problem.

3 Incl
as

A. N. BONE
Lieutenant Colonel, GS
Executive Secretary

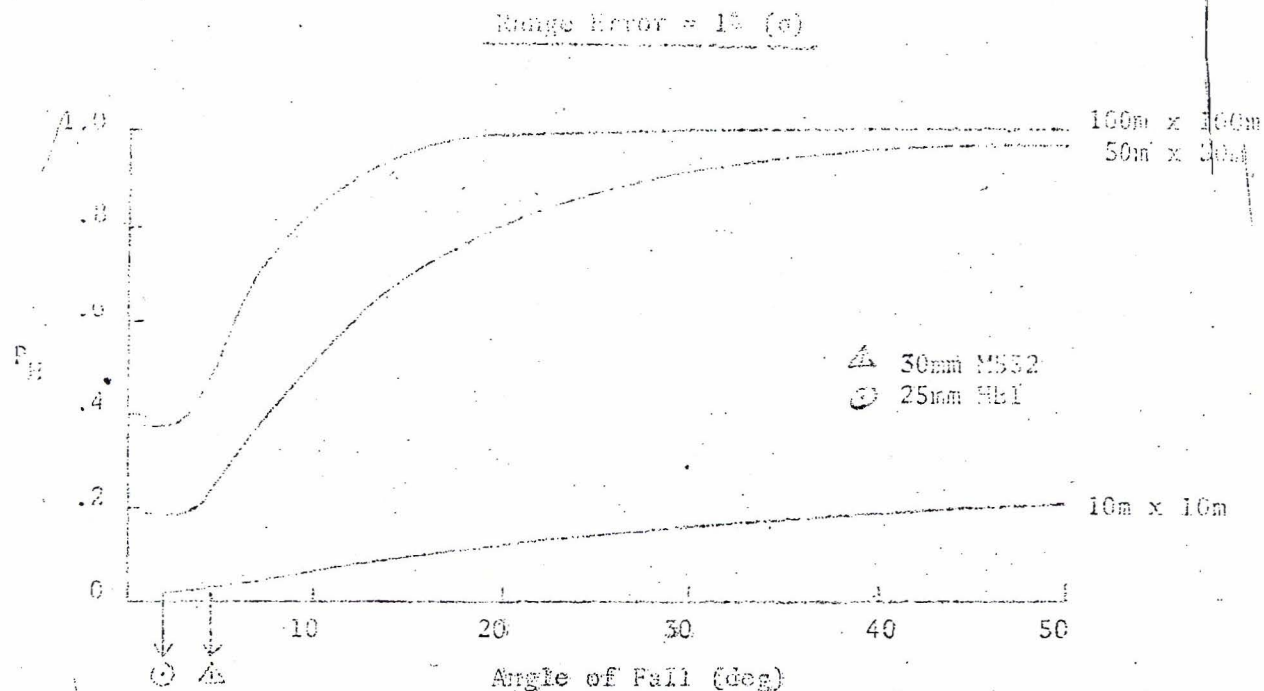
CF: LTC Cass

DECLASSIFIED UNDER AUTHORITY OF THE
INTERAGENCY SECURITY CLASSIFICATION APPEALS PANEL,
E.O. 13526, SECTION 5.3(b)(3)

ISCAP APPEAL NO. 2013-027, document no. 10
DECLASSIFICATION DATE: September 29, 2014

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~~Revised UNCLASSIFIED
when removed from
CLASSIFIED enclosure~~



Range = 1000m
 Error = 6m (σ)
 Altitude = 30m

Range Error = 5% (σ)

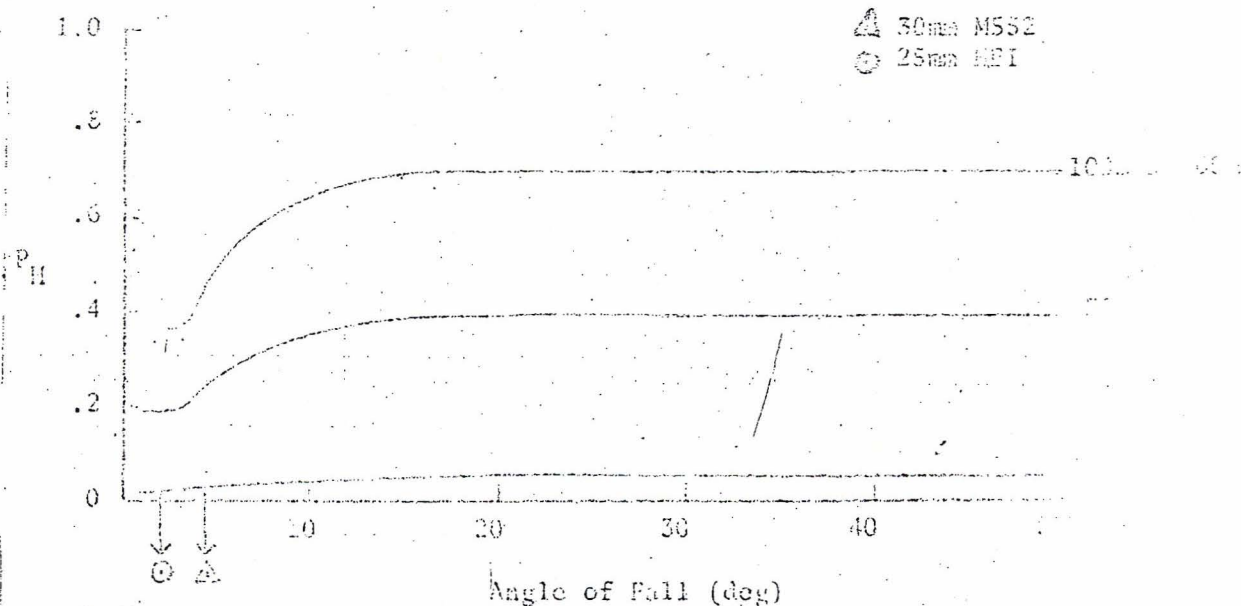


Figure 1 ~~(C)~~ Single Round Probability of Hit (P_H) Vs. Angle

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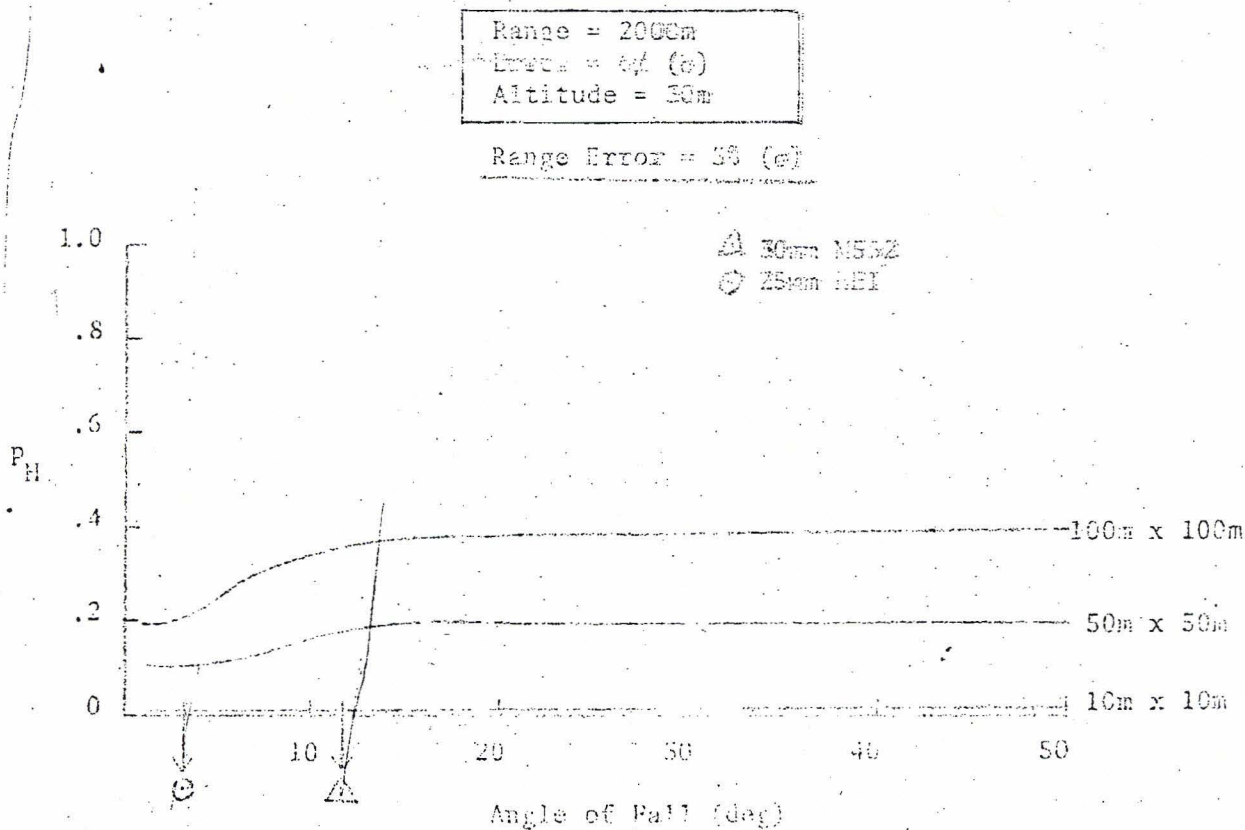
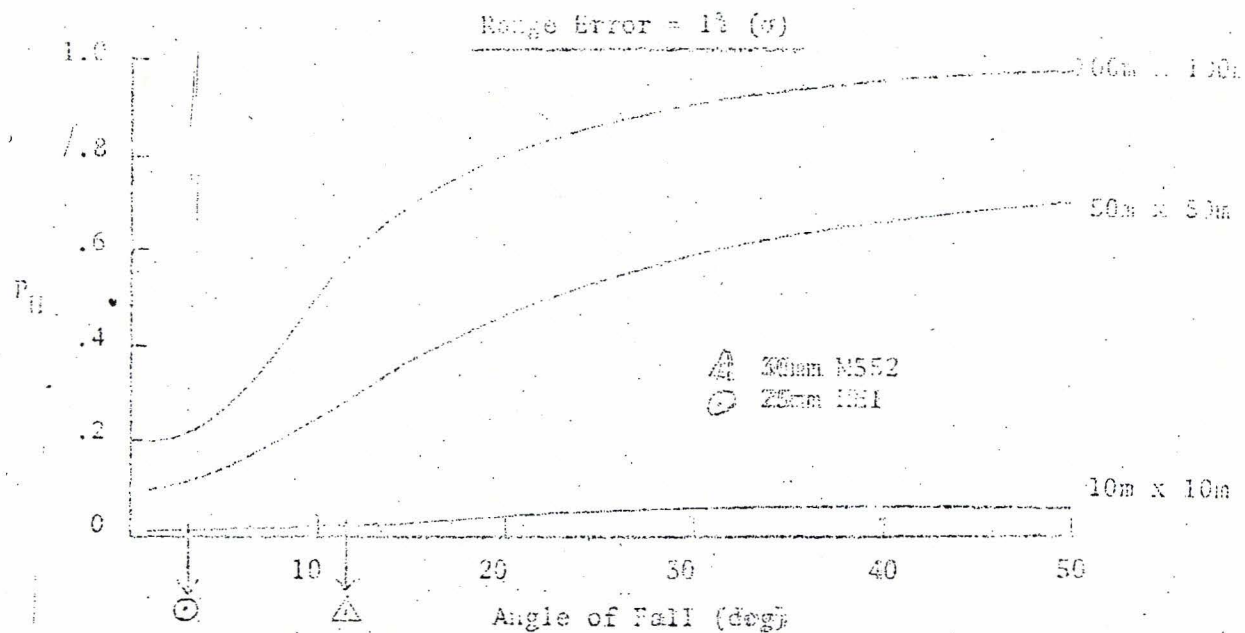


Figure 2 (2) Single Round Probability of Hit (P_H) Vs. Angle of Fall (θ)

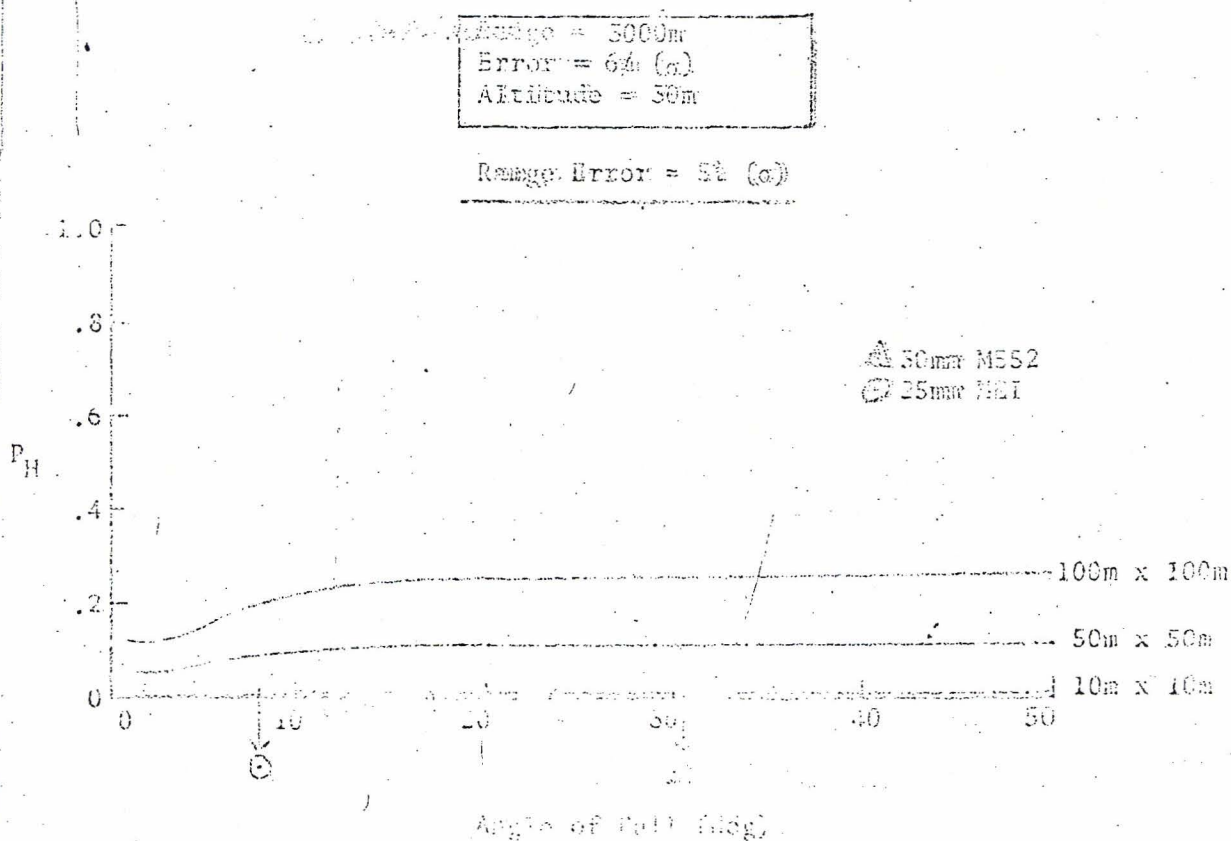
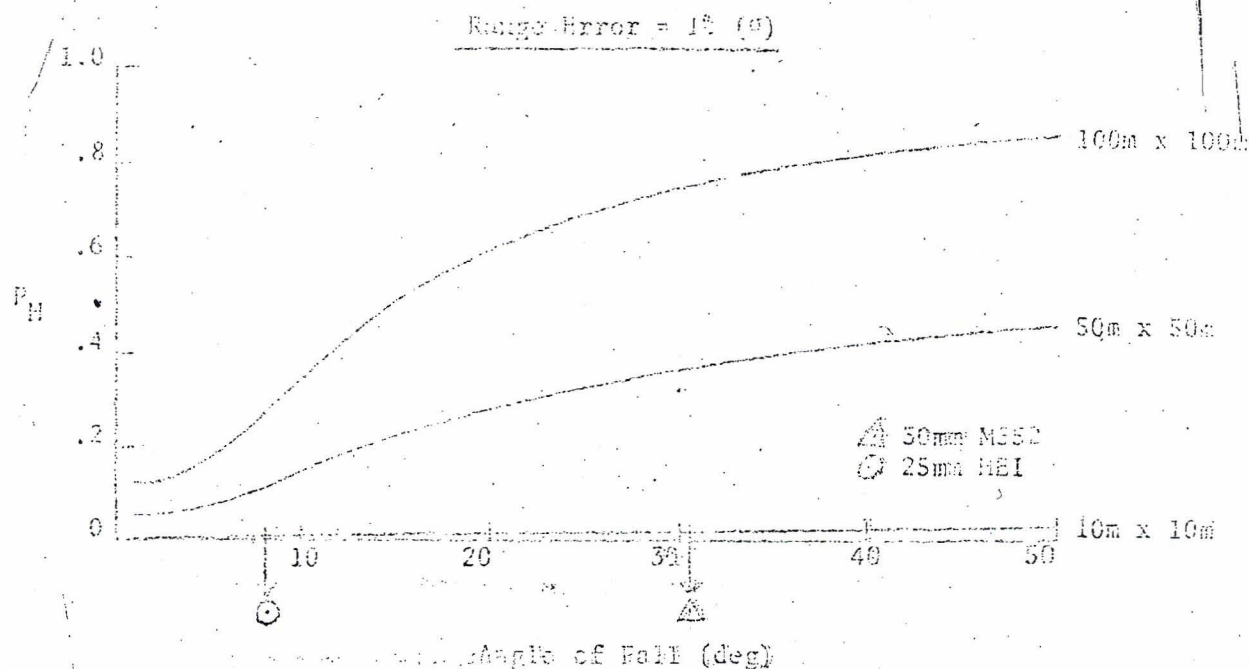


Figure 3 ~~(C)~~ Single Round Probability of Hit (P_H) vs. Angle of Fall (θ)

Page 10000 = 10000

A/C Alt.

100m
50m
30m

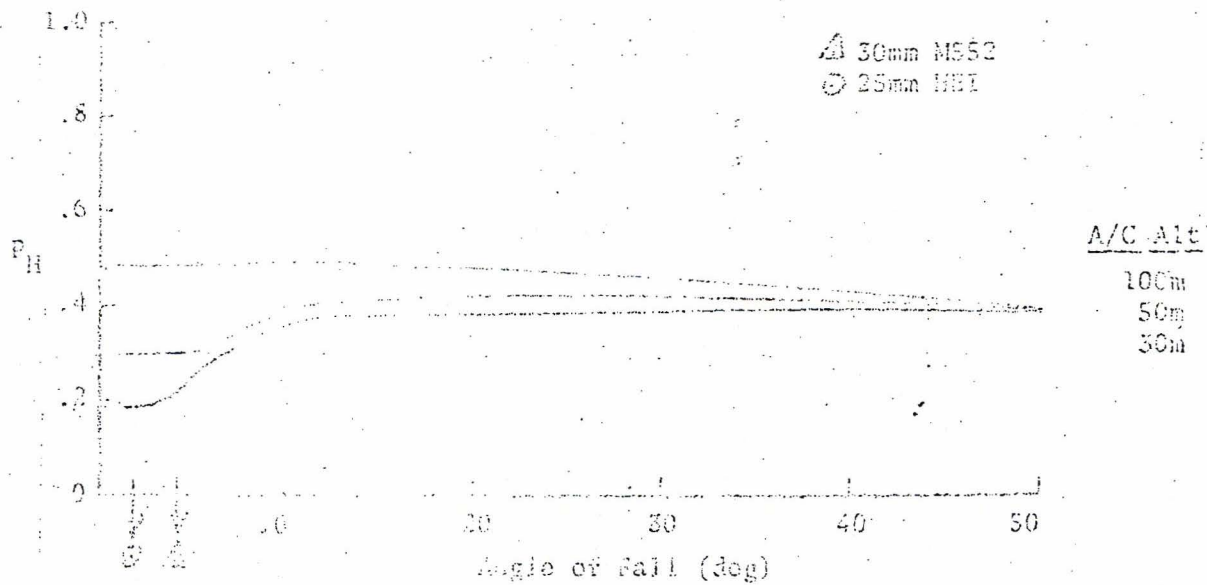
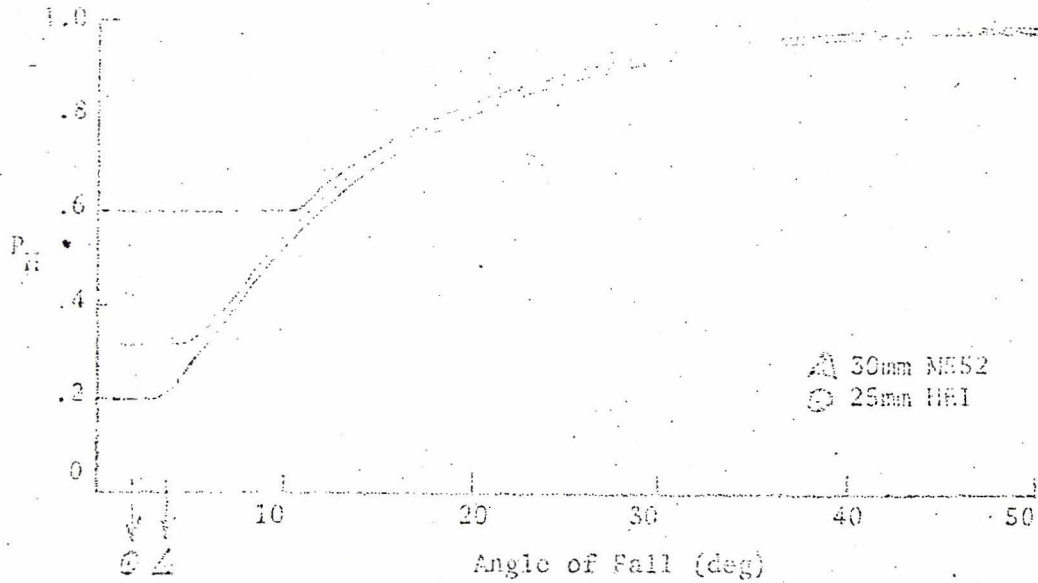
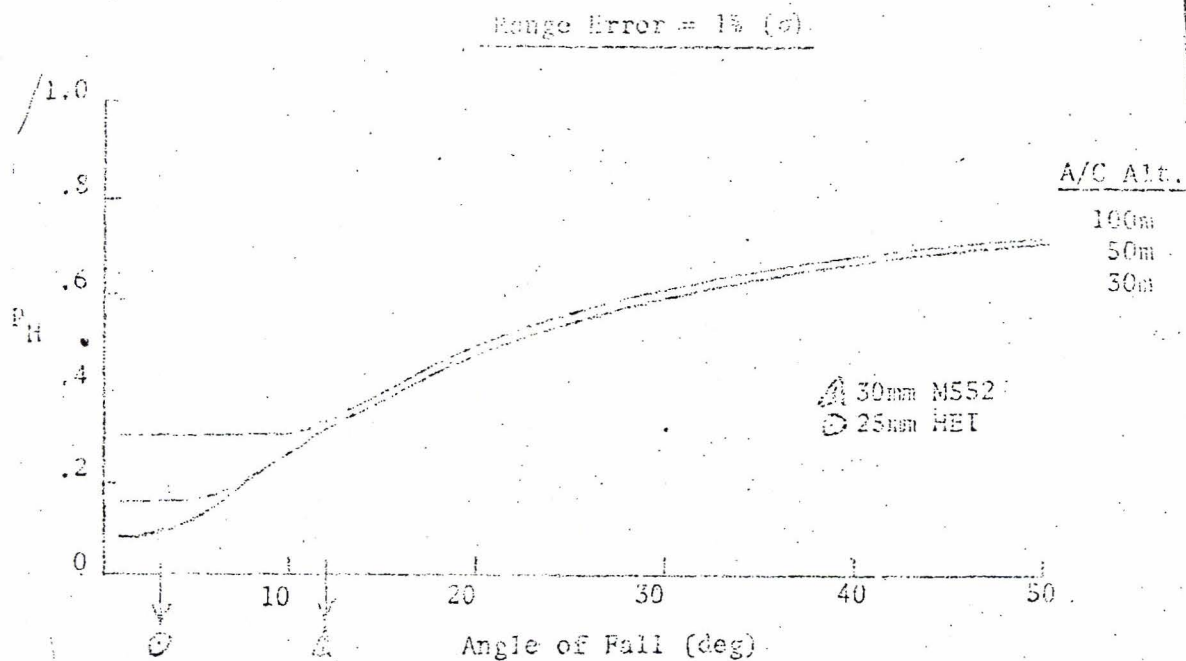


Figure 4. (a) Probability of Hit (P_H) Vs. Angle of Fall (deg)



Range = 2000m
Target = 50m x 50m
System Error = 6% (σ)

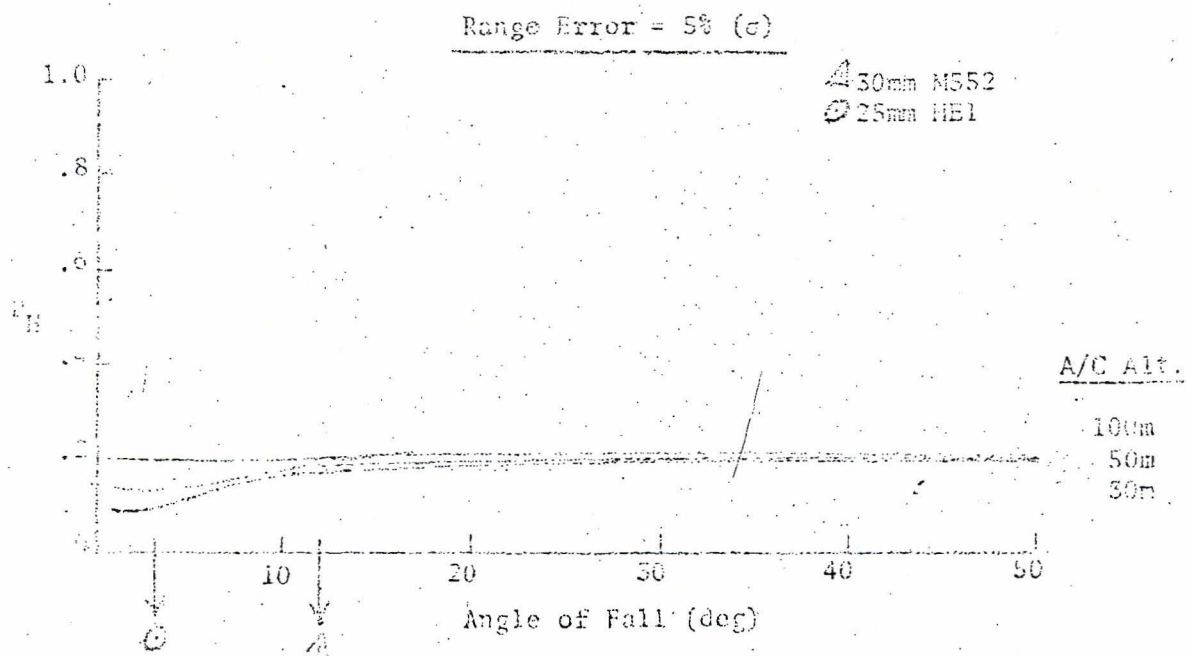
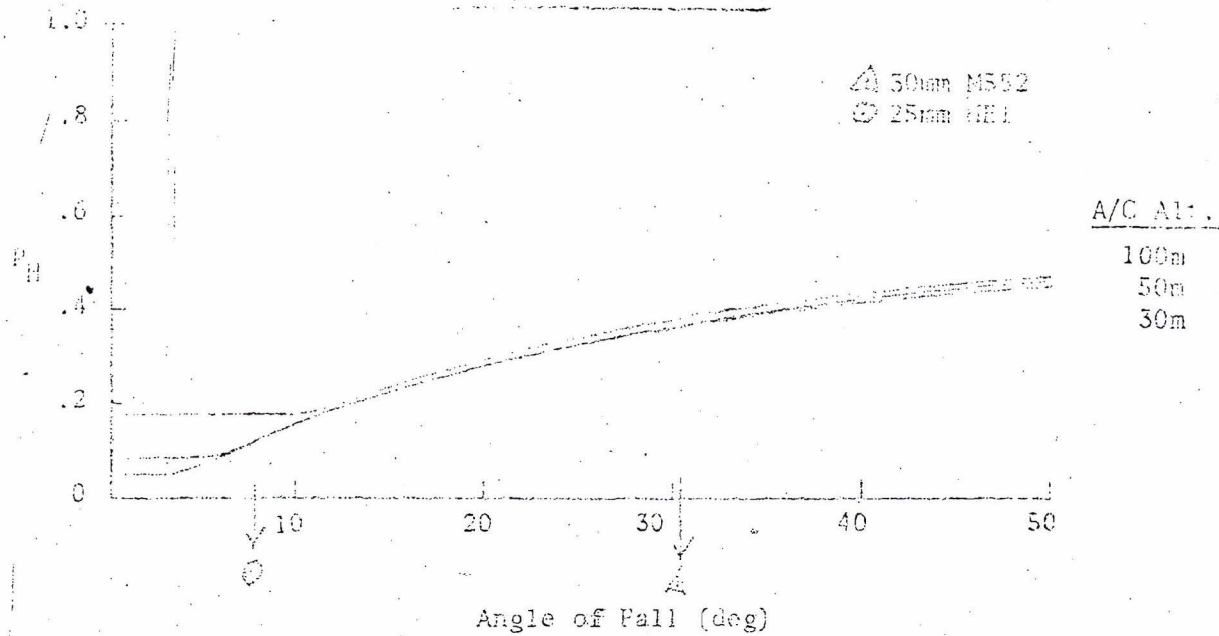


Figure 5 (b) Single Round Probability of Hit (P_H) Vs. Angle of Fall (°)

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Range Error = 18 (σ)



Range = 3000m
Target = 50m x 50m
System Error = 6% (σ)

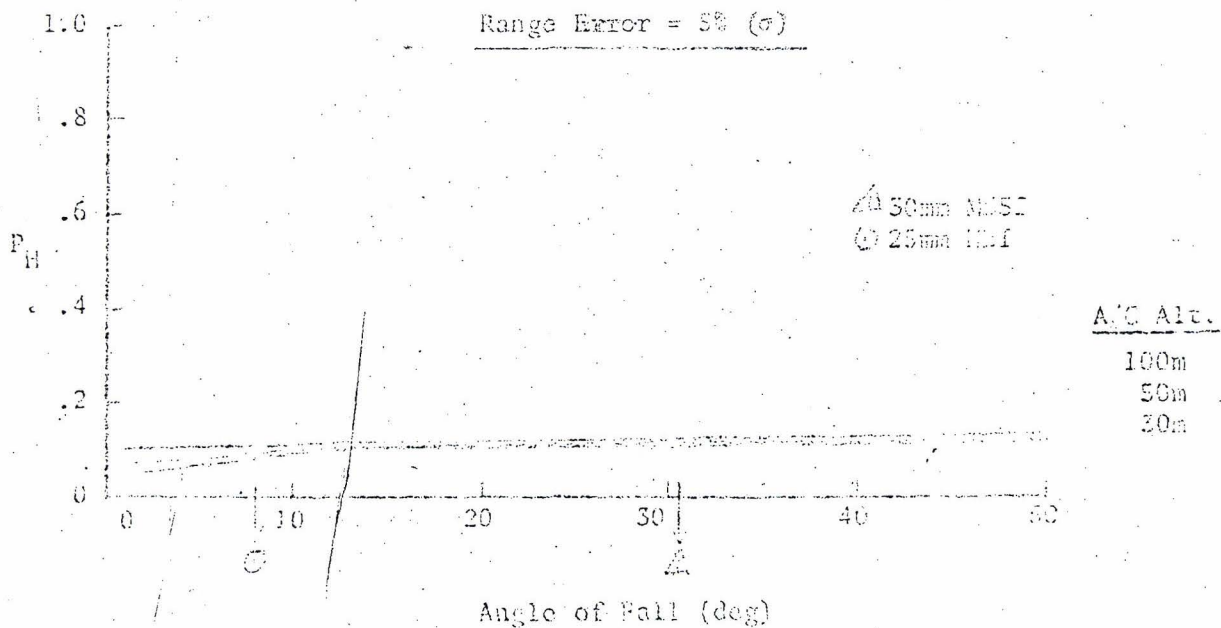
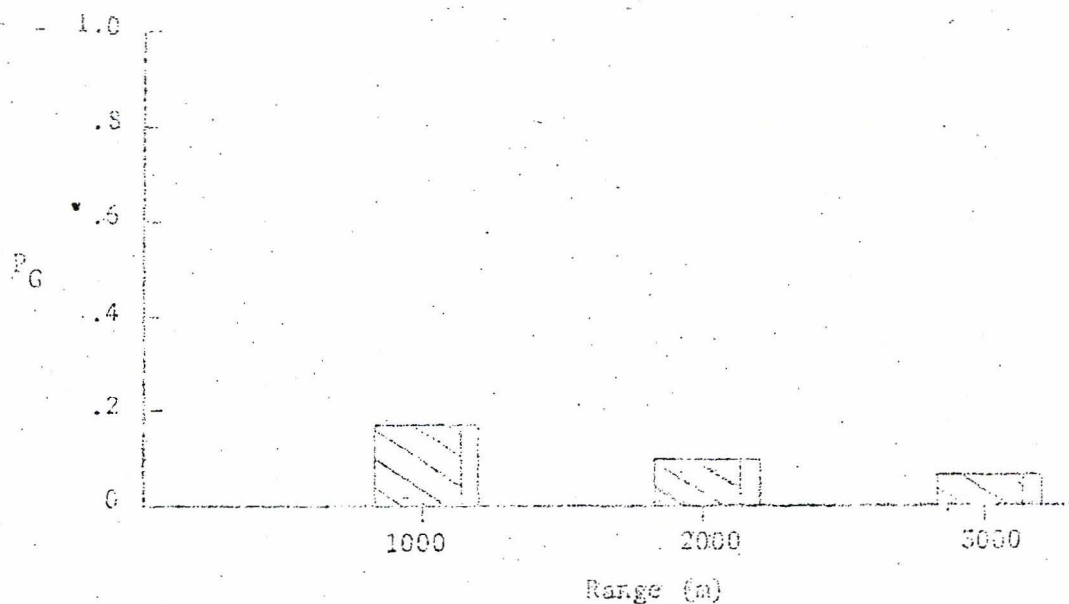


Figure 6 (b) Single Round Probability of Hit (P_H) Vs. Angle of Incidence (θ)

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~~A's and P's are same for both rounds~~



Range Error = 1% (σ)
System Error = 6% (σ)

25mm APDS 50mm M552

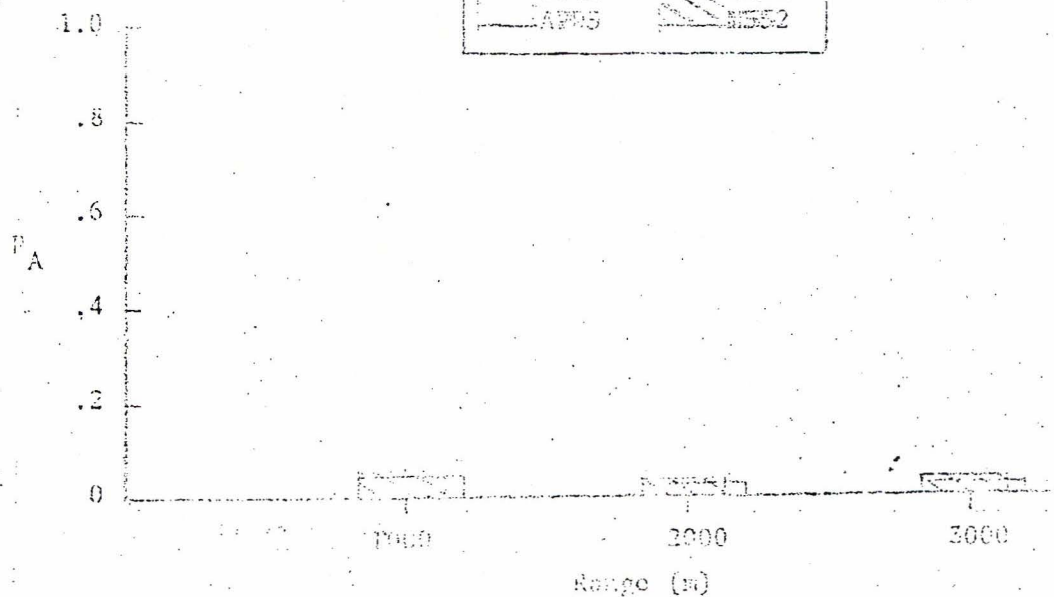


Figure 7 ~~(C)~~ Effect of Elevation vs. 250-25-4 (OPT/ROR); 4-Second
Time to Detection Adv. sec; g-path Maneuver (U)

250-25-4 (OPT/ROR) 250-25-4

250-25-4

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A_v 's and w 's are same for both rounds

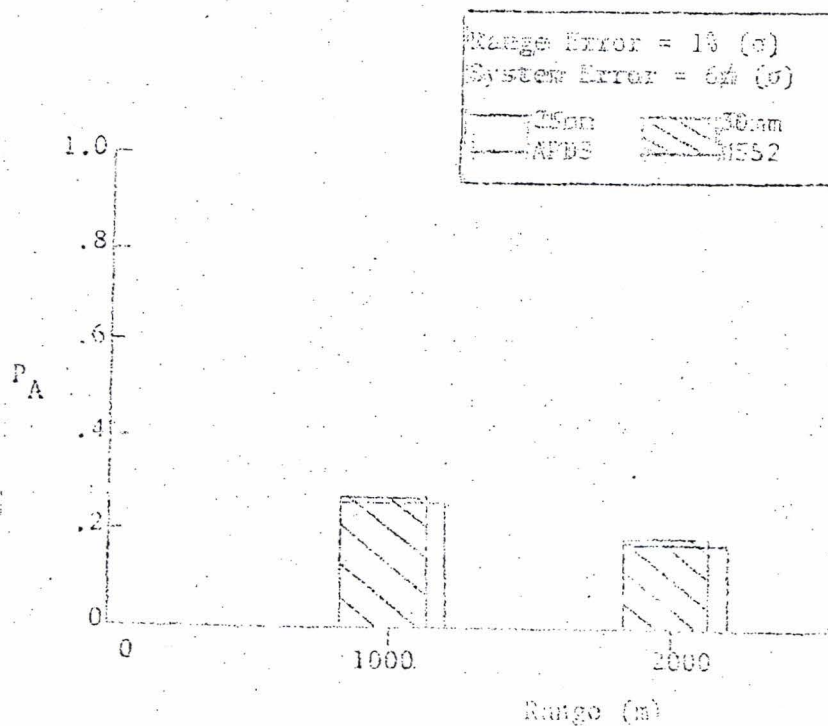
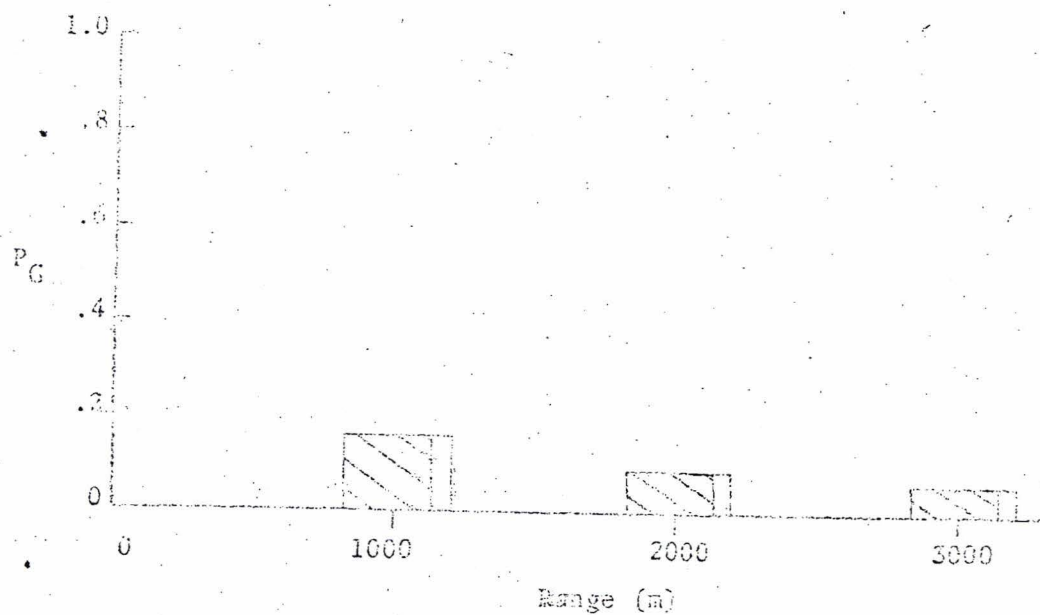
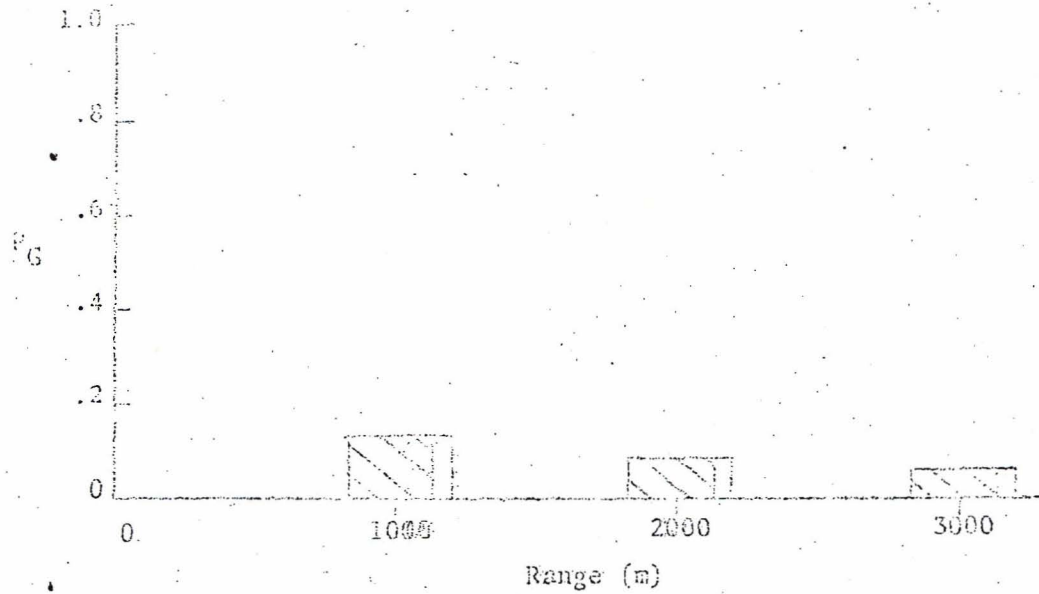


Figure 8 (C) Attack Helicopter Vs. ZSU-23-4 (OP1/P12);
Detection; g-path Maneuver (H)

A's and G's are same for both rounds



Range Error = 1m (σ)
System Error = 6m (σ)
25mm APDS 50mm MS52

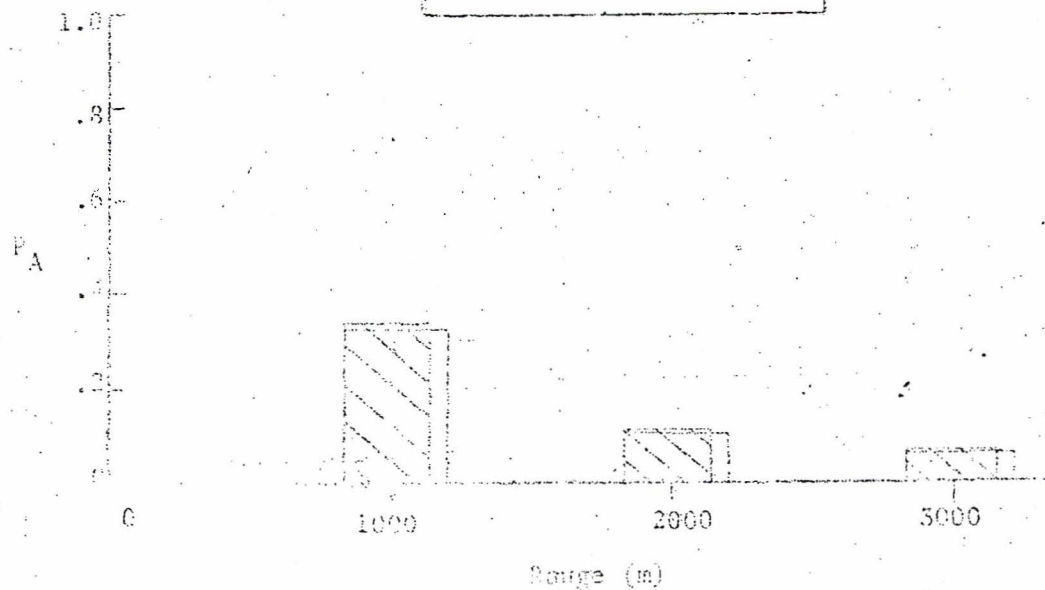


Figure 1-1: Helicopter vs. 25mm-4 (OPT/ROD); 4-second
1-7-78 Detection Advantage; g-path Maneuver (U)

1-7-78 Helicopter vs. 25mm-4 (OPT/ROD)

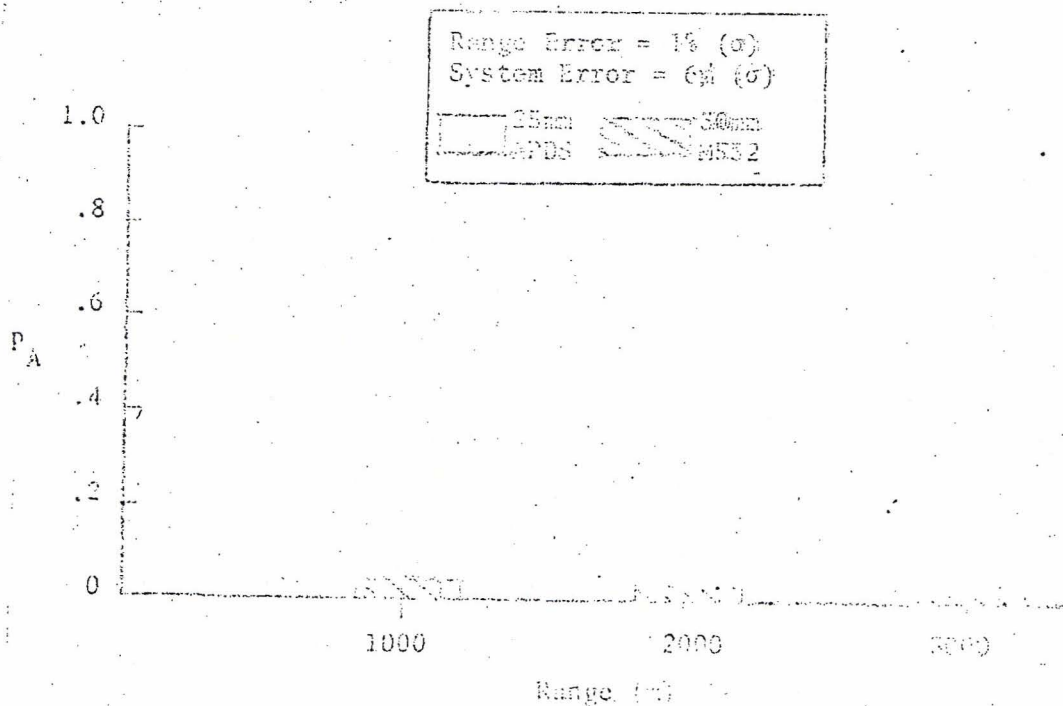
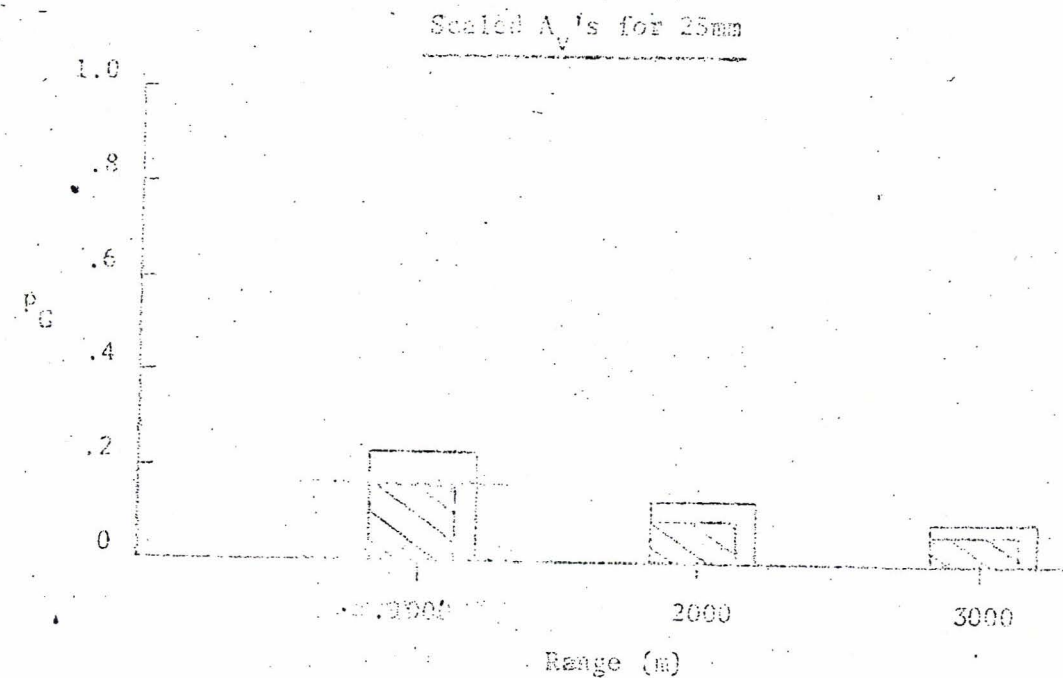


Figure 10 (5) Attack Helicopter Vs. F-23-4 (OFF/D30", 4000 ft)
Aircraft Detection Adv. (with 1000 ft)

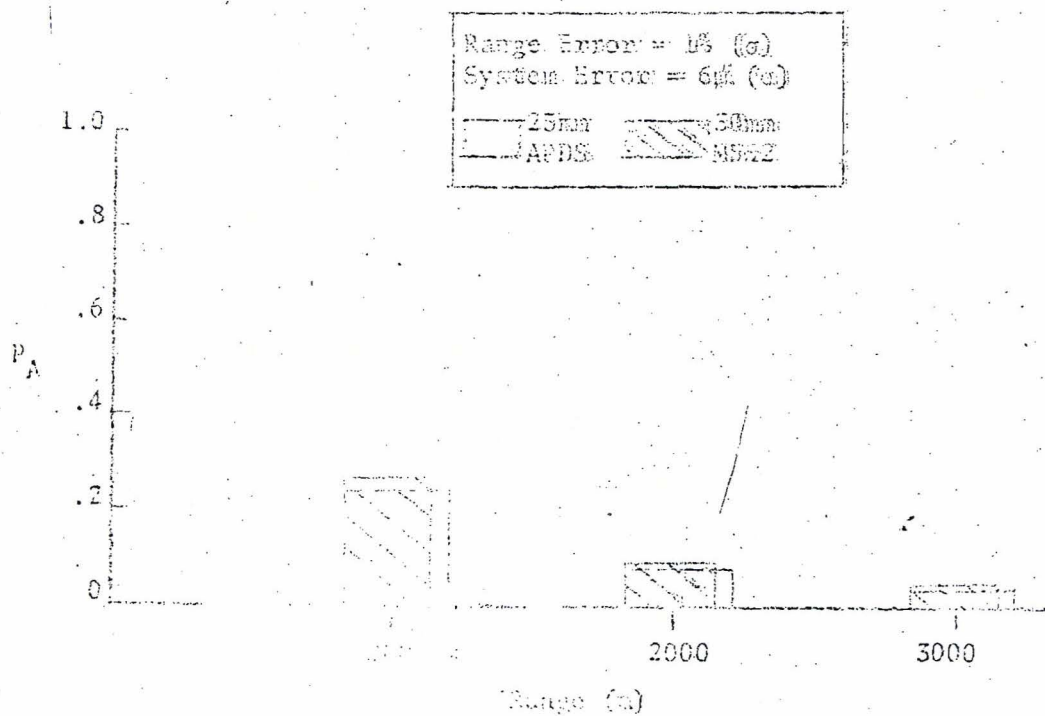
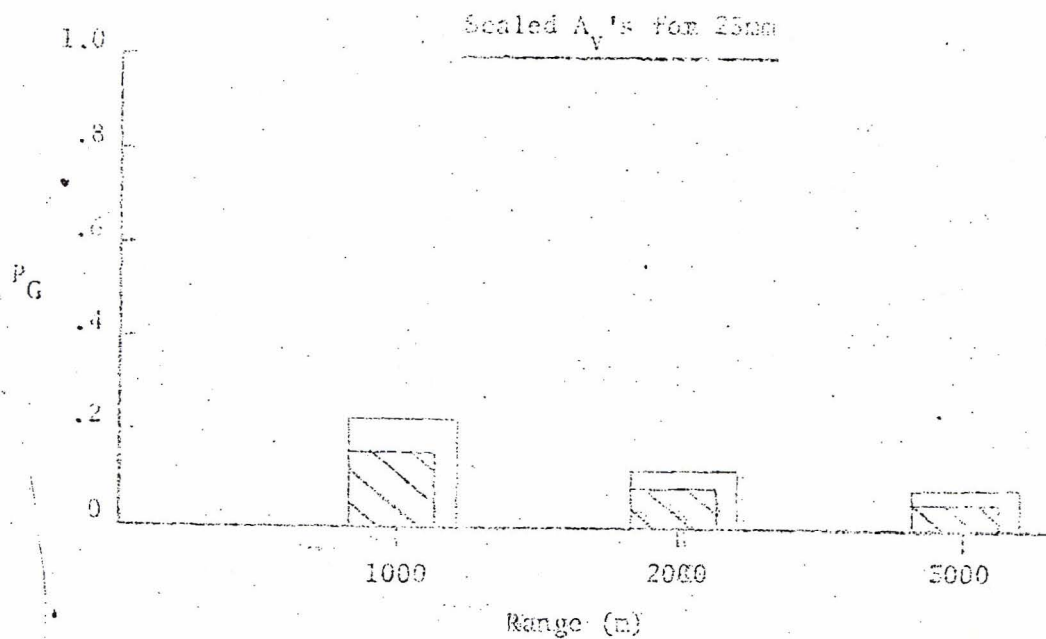
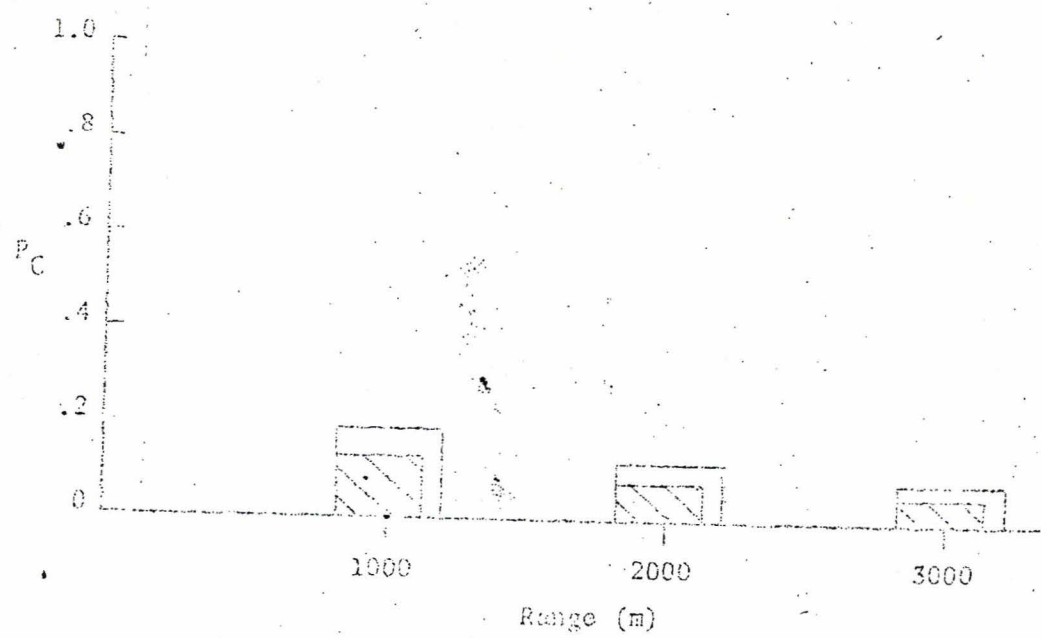


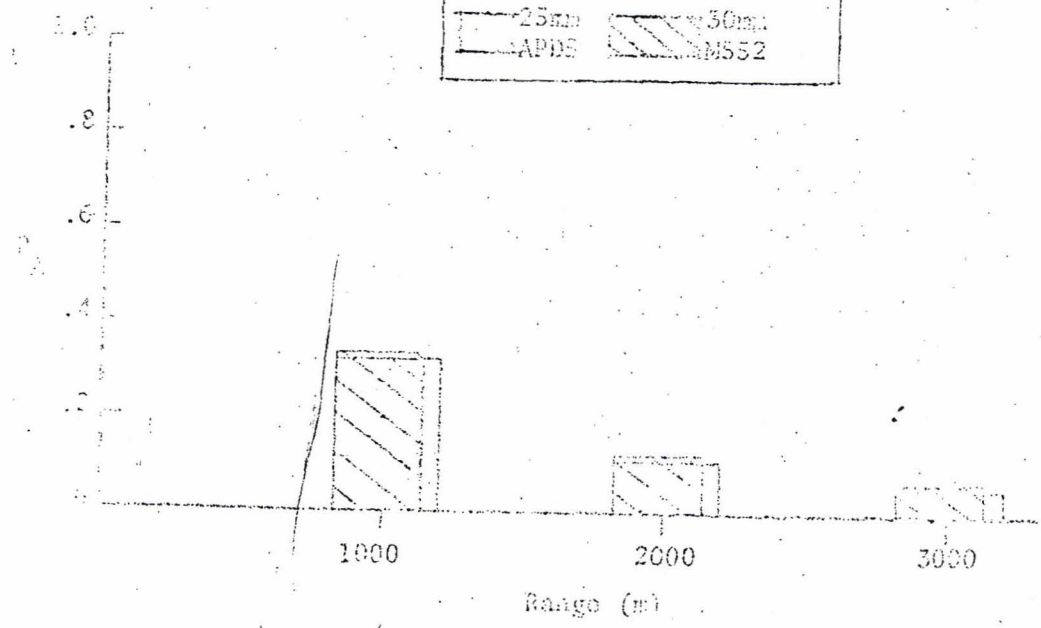
Figure 1. (a) (b) (c) (d) (e) (f) (g) (h) (i) (j) (k) (l) (m) (n) (o) (p) (q) (r) (s) (t) (u) (v) (w) (x) (y) (z) (aa) (ab) (ac) (ad) (ae) (af) (ag) (ah) (ai) (aj) (ak) (al) (am) (an) (ao) (ap) (aq) (ar) (as) (at) (au) (av) (aw) (ax) (ay) (az) (ba) (bb) (bc) (bd) (be) (bf) (bg) (bh) (bi) (bj) (bk) (bl) (bm) (bn) (bo) (bp) (bq) (br) (bs) (bt) (bu) (bv) (bw) (bx) (by) (bz) (ca) (cb) (cc) (cd) (ce) (cf) (cg) (ch) (ci) (cj) (ck) (cl) (cm) (cn) (co) (cp) (cq) (cr) (cs) (ct) (cu) (cv) (cw) (cx) (cy) (cz) (da) (db) (dc) (dd) (de) (df) (dg) (dh) (di) (dj) (dk) (dl) (dm) (dn) (do) (dp) (dq) (dr) (ds) (dt) (du) (dv) (dw) (dx) (dy) (dz) (ea) (eb) (ec) (ed) (ee) (ef) (eg) (eh) (ei) (ej) (ek) (el) (em) (en) (eo) (ep) (eq) (er) (es) (et) (eu) (ev) (ew) (ex) (ey) (ez) (fa) (fb) (fc) (fd) (fe) (ff) (fg) (fh) (fi) (fj) (fk) (fl) (fm) (fn) (fo) (fp) (fq) (fr) (fs) (ft) (fu) (fv) (fw) (fx) (fy) (fz) (ga) (gb) (gc) (gd) (ge) (gf) (gg) (gh) (gi) (gj) (gk) (gl) (gm) (gn) (go) (gp) (gq) (gr) (gs) (gt) (gu) (gv) (gw) (gx) (gy) (gz) (ha) (hb) (hc) (hd) (he) (hf) (hg) (hh) (hi) (hj) (hk) (hl) (hm) (hn) (ho) (hp) (hq) (hr) (hs) (ht) (hu) (hv) (hw) (hx) (hy) (hz) (ia) (ib) (ic) (id) (ie) (if) (ig) (ih) (ii) (ij) (ik) (il) (im) (in) (io) (ip) (iq) (ir) (is) (it) (iu) (iv) (iw) (ix) (iy) (iz) (ja) (jb) (jc) (jd) (je) (jf) (jg) (jh) (ji) (jj) (jk) (jl) (jm) (jn) (jo) (jp) (jq) (jr) (js) (jt) (ju) (jv) (jw) (jx) (jy) (jz) (ka) (kb) (kc) (kd) (ke) (kf) (kg) (kh) (ki) (kj) (kk) (kl) (km) (kn) (ko) (kp) (kq) (kr) (ks) (kt) (ku) (kv) (kw) (kx) (ky) (kz) (la) (lb) (lc) (ld) (le) (lf) (lg) (lh) (li) (lj) (lk) (ll) (lm) (ln) (lo) (lp) (lq) (lr) (ls) (lt) (lu) (lv) (lw) (lx) (ly) (lz) (ma) (mb) (mc) (md) (me) (mf) (mg) (mh) (mi) (mj) (mk) (ml) (mm) (mn) (mo) (mp) (mq) (mr) (ms) (mt) (mu) (mv) (mw) (mx) (my) (mz) (na) (nb) (nc) (nd) (ne) (nf) (ng) (nh) (ni) (nj) (nk) (nl) (nm) (nn) (no) (np) (nq) (nr) (ns) (nt) (nu) (nv) (nw) (nx) (ny) (nz) (oa) (ob) (oc) (od) (oe) (of) (og) (oh) (oi) (oj) (ok) (ol) (om) (on) (oo) (op) (oq) (or) (os) (ot) (ou) (ov) (ow) (ox) (oy) (oz) (pa) (pb) (pc) (pd) (pe) (pf) (pg) (ph) (pi) (pj) (pk) (pl) (pm) (pn) (po) (pp) (pq) (pr) (ps) (pt) (pu) (pv) (pw) (px) (py) (pz) (qa) (qb) (qc) (qd) (qe) (qf) (qg) (qh) (qi) (qj) (qk) (ql) (qm) (qn) (qo) (qp) (qq) (qr) (qs) (qt) (qu) (qv) (qw) (qx) (qy) (qz) (ra) (rb) (rc) (rd) (re) (rf) (rg) (rh) (ri) (rj) (rk) (rl) (rm) (rn) (ro) (rp) (rq) (rr) (rs) (rt) (ru) (rv) (rw) (rx) (ry) (rz) (sa) (sb) (sc) (sd) (se) (sf) (sg) (sh) (si) (sj) (sk) (sl) (sm) (sn) (so) (sp) (sq) (sr) (ss) (st) (su) (sv) (sw) (sx) (sy) (sz) (ta) (tb) (tc) (td) (te) (tf) (tg) (th) (ti) (tj) (tk) (tl) (tm) (tn) (to) (tp) (tq) (tr) (ts) (tt) (tu) (tv) (tw) (tx) (ty) (tz) (ua) (ub) (uc) (ud) (ue) (uf) (ug) (uh) (ui) (uj) (uk) (ul) (um) (un) (uo) (up) (uq) (ur) (us) (ut) (uu) (uv) (uw) (ux) (uy) (uz) (va) (vb) (vc) (vd) (ve) (vf) (vg) (vh) (vi) (vj) (vk) (vl) (vm) (vn) (vo) (vp) (vq) (vr) (vs) (vt) (vu) (vv) (vw) (vx) (vy) (vz) (wa) (wb) (wc) (wd) (we) (wf) (wg) (wh) (wi) (wj) (wk) (wl) (wm) (wn) (wo) (wp) (wq) (wr) (ws) (wt) (wu) (wv) (ww) (wx) (wy) (wz) (xa) (xb) (xc) (xd) (xe) (xf) (xg) (xh) (xi) (xj) (xk) (xl) (xm) (xn) (xo) (xp) (xq) (xr) (xs) (xt) (xu) (xv) (xw) (xx) (xy) (xz) (ya) (yb) (yc) (yd) (ye) (yf) (yg) (yh) (yi) (yj) (yk) (yl) (ym) (yn) (yo) (yp) (yq) (yr) (ys) (yt) (yu) (yv) (yw) (yx) (yy) (yz) (za) (zb) (zc) (zd) (ze) (zf) (zg) (zh) (zi) (zj) (zk) (zl) (zm) (zn) (zo) (zp) (zq) (zr) (zs) (zt) (zu) (zv) (zw) (zx) (zy) (zz)

Scalped A's For 25mm



Range Error = 1% (σ)
 System Error = 6% (σ)

25mm APDS 30mm M552



12 (2) Attack Helicopter Vs. ZSU-23-4 (OPT/EOR); 4-second
 ZSU-23-4 Detection Advantage; g-Path Maneuver (2)